REMARKS

Claims 1-59 are pending in the application. Applicants hereby incorporate the subject matter of claims 14 and 19 into claim 37; amend claim 40, and add new claims 51-59. New claims 51-56 correspond to claims 2-7; claims 57-58 correspond to claims 12 and 16; and claim 59 corresponds to claim 27 and the description at page 35, lines 16-25 of the specification. Withdrawn claim 40 is amended to recite the removal of the liquid medium, as described at page 45, lines 20-34 of the specification. Applicants also amend the specification at each recitation of "Centriprep" to recite the generic terminology "centrifugal filter units". No new matter is added.

Election/Restriction

Applicants herein indicate as withdrawn claims 1-7, 11-36, and 39-50. These claims were non-elected, without traverse, in the reply filed April 30, 2008.

Specification

The Office Action indicates that the use of the trademark "Centriprep YM-10" should be capitalized wherever it appears, and be accompanied by generic terminology.

Applicants note that "Centriprep" is capitalized at each instance in which it appears in the specification, and at each instance, the specification has been amended to also recite the generic terminology "centrifugal filter units," as suggested by the Examiner (see pages 22, 49 and 53).

III. Rejection under 35 U.S.C. § 102

The Office Action rejects claims 8-10 and 37-38 under 35 U.S.C. § 102(b) as being anticipated by Curtin et al (U.S. Patent 6,150,426). The Office Action asserts that Curtin et al. discloses each feature of the foregoing claims.

Applicants respectfully traverse the rejection.

The fluoropolymer dispersion recited in claim 8 comprises a fluoropolymer solid composition dispersed in a liquid medium, the fluoropolymer solid composition containing a fine particle comprising a fluoropolymer, the fine particle containing, at the proportion of at least 25% by mass thereof, a spherical fluoropolymer fine particle, the spherical fluoropolymer fine particle being substantially spherical.

In contrast, Curtin et al. discloses a method of obtaining aqueous dispersions of sulfonic acid group-containing fluoropolymers, which comprises treating membranous molded articles prepared from $-SO_2F$ group-containing fluoropolymer with an alkali and then with an acid to convert $-SO_2F$ to the sulfonic acid group. The membranous molded articles are then i) dissolved in a mixed solvent composed of water and a lower alcohol; or ii) dissolved in water under high temperature and high pressure conditions; or iii) are treated in a solvent essentially consisting of water that is stirred under high temperature and high pressure conditions in order to yield an aqueous dispersion having particles of 2 to 30 nm in size (see page 3 of the present specification). However, the method disclosed in Curtin et al. is inefficient because the fluoropolymer in liquid form obtained by polymerization is first made into membranous molded articles, and then subsequently made liquid. Further, Curtin et al. requires high-temperature and high-pressure treatment conditions, thus requiring a corresponding reaction apparatus and energy inputs.

Additionally, the polymer particles obtained by the method of Curtin et al. are known to have a rod-like or thread like shape such that the aspect ratio is generally 5 to 6 and the major axis length is about 11 nm. Hence, aqueous dispersions prepared by dispersing such rod-like or thread-like polymer particles requires removal (by evaporation) a large amount of the dispersion medium in, for example, forming films and/or membranes by casting or impregnation. Such a

method is very inefficient, and presents difficulties in producing thick films and/or membranes. Moreover, cracks are readily formed drying in the step.

Although the Office Action takes the position that Curtin et al. discloses that the fluoropolymer fine particles are substantially spherical (at column 3, lines 43-45, Figure 2 of Curtin et al), the shape of the particle shown in Figure 2 is the shape of TiO_2. Rather, the polymer particles of Curtin et al have a thread-like structure (see column 8, line 42 bridging to column 9, line 13).

In view of the foregoing, Curtin et al. does not anticipate the features of claim 8, from which claims 9-10, 38 and new claims 52-56 depend. New claim 51 also recites a spherical flouropolymer fine particle.

Instant claim 37, from which claims 57-59 depend, is also directed toward a dispersion having fine particles comprising a fluoropolymer that are substantially spherical due to having been obtained by the process claimed therein.

In contrast, Curtin et al. refers to US '875, US '545 and US '525 (at column 4, lines 36-50) and discloses that the fluoropolymer is produced by copolymerization of tetrafluoroethylene and CF_2=CF-O-$CF_2CF(CF_3)$-O-$CF_2CF_2SO_2F$, and perfluoro (3,6-dioxa-4-methyl-7-octenesulfonyl fluoride), followed by conversion to sulfonate groups by hydrolysis of the sulfonyl fluoride groups to convert to the desired form. However, none of Curtin et al. and US '875, US '545 nor US '525 disclose a fluoropolymer dispersion prepared by emulsion polymerization to produce a fluoropolymer precursor having $-SO_2X^1$ and/or $-COZ^1$, followed by hydrolysis thereof, in order to yield a fluoropolymer without having dried the fluoropolymer precursor and the fluoropolymer throughout the process.

The following descriptions, as set forth in Applicants' specification, summarize the related prior art.

One method currently used in preparing aqueous dispersions of sulfonic acid group-containing fluoropolymers comprises subjecting membranous molded articles made from $-SO_2F$ group-containing fluoropolymers to alkali treatment and then to acid treatment to convert $-SO_2F$ groups to sulfonic acid groups. The molded articles are then treated in a mixed solvent composed of water and a lower alcohol or in water at high temperature and high pressure conditions (see page 2, lines 10-22).

The $-SO_2F$ group-containing fluoropolymers used in the art in preparing membranous molded articles to date have been produced mostly by solution polymerization in order to obtain pellets for use in extrusion molding and like methods of producing membranous molded articles. For example, Example VIII and XI of US '875 show such a method to produce a film of fluoropolymer having $-SO_3Na$ groups. This production method comprises polymerization of vinyl ethers in the form of the sulfonyl fluoride using a perfluorocarbon system (see column 2, lines 40-54 of US '875). Naturally, this production method does not produce an aqueous dispersion.

Although US '875 also discloses another method which comprises the polymerization of fluorocarbon ethers in the form of the acid or the acid salt in an aqueous medium (see column 2, lines 55-60 of US '875), US '875 does not disclose an emulsion polymerization that produces a fluoropolymer precursor having $-SO_2X^1$ and/or $-COZ^1$. Rather, polymer particles obtained from fluorocarbon ethers in the form of the acid or the acid salt are rod-like or threadlike particles due to the charge repulsion between molecules with $-SO_3H$.

Curtin et al. thus does not anticipate claims 37 or claims 57-59 depending therefrom.

In view of the foregoing, withdrawal of the rejection and allowance of claims 8-10, 37-38, and 51-59 are earnestly solicited.

IX. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The U.S. Patent and Trademark Office is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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